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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,363	02/12/2004	Hironori Sumitomo	15162/05670	5056
24367	7590	05/03/2007		
SIDLEY AUSTIN LLP 717 NORTH HARWOOD SUITE 3400 DALLAS, TX 75201			EXAMINER MACKOWEY, ANTHONY M	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/777,363	Applicant(s) SUMITOMO ET AL.	
	Examiner Anthony Mackowey	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-8 and 11-20 is/are rejected.
- 7) ☒ Claim(s) 3,4,9,10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/9/07; 2/12/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35 U.S.C. Sec. 101. Certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture or composition of matter. USPTO personnel should be prudent in applying the foregoing guidance. Nonfunctional descriptive material may be claimed in combination with other functional descriptive multi-media material on a computer-readable medium to provide the necessary functional and structural interrelationship to satisfy the requirements of 35 U.S.C. Sec. 101. The presence of the claimed nonfunctional descriptive material is not necessarily determinative of nonstatutory subject matter. For example, a computer that recognizes a particular grouping of musical notes read from memory and upon recognizing that particular sequence, causes another defined series of notes to be played, defines a functional interrelationship among that data and the computing processes performed when utilizing that data, and as such is statutory because it implements a statutory process.

Claims 13-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows.

Claim 13 recites "a recording medium that is used for calculating a matching degree in an image and for recording a template consisting of on or more open curves indicating a part of a contour of a model of an object or a part of the model," which does not impart functionality to a computer or computing device, and is thus considered nonfunctional descriptive material. Such nonfunctional descriptive material, in the absence of a functional interrelationship with a computer, does not constitute a statutory process, machine, manufacture or composition of matter and is thus non-statutory per se. It appears claim 13 describes a recording medium

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recording a template consisting of open curves which is merely an image or a compilation of data. The recitation of "A recording medium that is used for calculating a matching degree in an image" is merely a recitation of the intended use for the recording medium and does not impart functionality to a computer or define a functional relationship with a computer. Claims 14 and 15 depend from claim 13 and do not further define any functional relationship of the recording medium or the template with a computer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7, 8, 13, 16, 17 and 18 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by US 2003/0194113 to Wenzel et al. ("Wenzel").

Regarding claim 1, Wenzel discloses an object detection apparatus for detecting a target object in an image (page 5, paragraphs 69-70), comprising:

a template memory portion for memorizing a template consisting of one or more open curves indicating a part of a contour of a model of the object or a part of the model (page 6, paragraph 83 and 85; page 8, paragraph 116);

an image input portion for entering an image to be detected (pages 5-6, paragraphs 75-82); and

a detection portion for detecting the object in the entered image by calculating a matching degree of the entered image with the template (page 6, paragraph 83; page 13, paragraph 180; page 15, paragraph 196).

Regarding claim 2, Wenzel further discloses an object detection apparatus further comprising:

an edge image generation portion for generating an edge image of the entered image (page 11, paragraphs 154-159), wherein

the detection portion detects the object by calculating the matching degree in accordance with the number of pixels in an overlapping area of an edge of the edge image with the one or more open curves of the template when overlapping the template with each position of the edge image of the entered image (page 10, paragraph 143; pages 13, paragraph 180; page 15, paragraph 196).

Regarding claim 7, Wenzel discloses an object detection method for detecting a target object in an image (Fig. 7; pages 9-10, paragraph 141), comprising:

a step for entering an image to be detected (page 6, paragraph 82); and

a step for detecting the object in the entered image by calculating a matching degree of the entered image with a template consisting of one or more open curves indicating a part of a

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contour of a model of the object or a part of the model (page 10, paragraph 143; pages 13, paragraph 180; page 15, paragraph 196).

Regarding claim 8, Wenzel further discloses an object detection method further comprising:

a step for generating an edge image of the entered image (page 11, paragraphs 154-159), wherein

the step for detecting includes detecting the object by calculating the matching degree in accordance with the number of pixels in an overlapping area of an edge of the edge image with the one or more open curves of the template when overlapping the template with each position of the edge image of the entered image (page 10, paragraph 143; pages 13, paragraph 180; page 15, paragraph 196).

Regarding claim 13, Wenzel discloses a recording medium that is used for calculating a matching degree in an image and for recording a template consisting of one or more open curves indicating a part of a contour of a model of an object or a part of the model (page 5, paragraphs 70-71; page 6, paragraph 83 and 85; page 8, paragraph 116).

Regarding claim 16, Wenzel discloses a monitoring system (pages 5-6, paragraphs 68-86), comprising:

a video camera for taking an image (pages 5-6, paragraphs 75-82); and

an object detection apparatus for detecting a target object in the image taken by the video camera (page 6, paragraph 83 and 85; page 8, paragraph 116; page 13, paragraph 180; page 15, paragraph 196), wherein

the object detection apparatus includes

a template memory portion for memorizing a template consisting one or more open curves indicating a part of a contour of a model of the object or a part of the model (page 6, paragraph 83 and 85; page 8, paragraph 116), and

a detection portion for detecting the object in the image by calculating a matching degree of the image taken by the video camera with the template (page 6, paragraph 83; page 13, paragraph 180; page 15, paragraph 196).

Regarding claim 17, Wenzel further discloses a monitoring system further comprising:

an image display device for displaying an enlarged image area of the object detected by the object detection apparatus among the image taken by the video camera (page 5, paragraph 69; page 15, paragraph 198).

Regarding claim 18, Wenzel further discloses a monitoring system further comprising:

a recording device for recording an image taken by the video camera when the object is detected in the image (page 6, paragraph 83; page 15, paragraph 198).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 11, 12, 14, 15, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wenzel in view of US 6,879,705 to Tao et al. ("Tao").

Regarding claims 5, 6, 11, 12, 14, 15, 19 and 20, Wenzel does not explicitly disclose application of the object detection and pattern matching to images of a person. Therefore, Wenzel does not explicitly disclose, the object is a person, and the open curve constituting the template is a contour of an upper half of a human head or are contours of human shoulders. Tao teaches an object detection and tracking apparatus utilizing an object model of a person including a head-shoulder contour (Fig. 10).

The teachings of Wenzel and Tao are combinable because they are both concerned with image processing for object detection using templates. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the object detection system and method taught by Wenzel could be applied for use in detecting a person as taught by Tao because the invention taught by Wenzel is capable of detecting an object in images of a complex scene and despite transformations of the object in the scene (Wenzel, page 2, paragraphs 15 and 16) such as the images taught by Tao (Fig. 5). The Examiner further believes if the teachings of Wenzel were applied to the detection of a person in the image as taught by Tao, it would have

been obvious (if not inherent) that the open curves constituting the template would include an upper half of a human head and contours of the shoulders.

Allowable Subject Matter

Claims 3, 9, 4 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 3 recites, "a count portion for counting the number of times of overlapping of the template with the one or more open curves for each pixel in the edge image when the overlapping portion performed the overlapping process for each pixel on an edge of the edge image, wherein the template memory portion has a template that is made of one or more open curves indicating a part of a contour of a model of the object or a part of the model and a point indicating a predetermined position of the model, and is made by rotating the one or more open curves around the point by a half-turn, the overlapping portion overlaps the edge image with the template so that a pixel on the edge of the edge image matches the point of the template, and the detection portion detects the object by calculating the matching degree in accordance with the number of times counted by the count portion."

Claim 9 recites, "a step for counting the number of times of overlapping of the template with the one or more open curves for each pixel in the edge image when performing the overlapping process for each pixel on an edge of the edge image, wherein the template is a template that is made of one or more open curves indicating a part of a contour of a model of the

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object or a part of the model and a point indicating a predetermined position of the model, and is made by rotating the one or more open curves around the point by a half-turn, the step for overlapping includes overlapping the edge image with the template so that a pixel on the edge of the edge image matches the point of the template, and the step for detecting includes detecting the object by calculating the matching degree in accordance with the number of times counted in the step for counting.”

The above features, as explicitly recited, in combination with the other elements of the claims and base claims are neither disclosed nor suggest by the prior art or record. Wenzel teaches the template may be a rotated version of an original template (page 22, paragraph 338) and a matching distance between the template and target image but does not disclose counting the number of times of overlapping between the template and the target image as required by claims 3 and 9. Although other prior art teaches counting the number of overlaps between a template and a target image (US 6,665,446 to Kato) the Examiner believes the counting of the overlapped portions and detection based on the count as explicitly recited by the claims is not combinable with the matching distance technique taught by Wenzel.

Claim 4 recites,” a brightness image generation portion for generating a brightness image of the entered image; and an average brightness calculation portion for calculating an average brightness of an image area of the generated brightness image, wherein the template memory portion memorizes a template consisting of one or more open curves indicating a part of a contour of a model of the object or a part of the model and a plurality of areas sandwiching the one or more open curves, the average brightness calculation portion calculates an average brightness of each image area of the brightness image overlapping the plural areas of the

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template when overlapping the template with each position of the generated brightness image, and the detection portion detects the object by calculating the matching degree in accordance with the average brightness of each of the image areas of the brightness image that was calculated by the average brightness calculation portion.”

Claim 10 recites, “a step for generating a brightness image of the entered image; and a step for calculating an average brightness in an image area of the generated brightness image, wherein the template is a template that is made of one or more open curves indicating a part of a contour of a model of the object or a part of the model and a plurality of areas sandwiching the one or more open curves, the step for calculating an average brightness includes calculating an average brightness of each image area of the brightness image overlapping the plural areas of the template when overlapping the template with each position of the generated brightness image, and the step for detecting includes detecting the object by calculating the matching degree in accordance with the calculated average brightness of each of the image areas of the brightness image.”

The above features, as explicitly recited, in combination with the other elements of the claims and base claims are neither disclosed nor suggest by the prior art of record. Wenzel does not disclose the use of the brightness image or the calculation of the average brightness of an area of the brightness image or calculating the average brightness in the areas of overlap between the target image and the template image. The Examiner believes a technique utilizing the brightness images and average brightness of overlapping regions of the template and target images as explicitly recited in the claims is not combinable with the matching distance technique taught by Wenzel.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,280,530 to Trew et al.	US 7,123,754 Matsuo et al.
US 5,835,616 to Lobo et al.	US 2002/0071598 to Kunieda et al.
US 5,987,154 to Gibbon et al.	US 2003/0103648 to Ito et al.
US 5,995,639 to Kado et al.	US 2003/0194134 to Wenzel et al.
US 6,665,446 to Kato	US 2003/0194144 to Wenzel et al.
US 6,885,761 to Kage	US 2003/0235341 to Gokturk et al.
US 6,922,478 to Konen et al.	US 2004/0037467 to Wenzel et al.
US 6,967,674 to Lausch et al.	US 2004/0120399 to Kato
US 7,072,526 to Sakuramoto	US 20040151347 to Wisniewski
US 7,123,745 to Lee	US 2005/0036688 to Froeba et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Mackowey whose telephone number is (571) 272-7425.

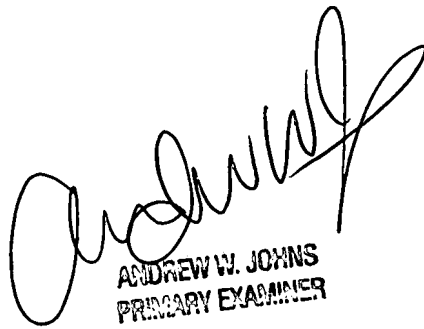
The examiner can normally be reached on M-F 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bella Matthew can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AM
4/29/07



ANDREW W. JOHNS
PRIMARY EXAMINER